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First Report of Goss's Bacterial Wilt and Leaf Blight (*Clavibacter michiganensis* subsp. *nebraskensis*) of Corn in Texas

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Disease Notes

First Report of Goss's Bacterial Wilt and Leaf Blight (*Clavibacter michiganensis* subsp. *nebraskensis*) of Corn in Texas

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In September 2009, the University of Nebraska–Lincoln Plant and Pest Diagnostic Clinic received leaf samples of hybrid corn (*Zea mays* L.) displaying long, necrotic lesions with wavy margins. The lesions had discontinuous water-soaked spots that are indicative of Goss's bacterial wilt and leaf blight. The symptomatic leaves were submitted from Dallam County, located in the Texas Panhandle (northwest Texas). According to the USDA Farm Service Agency and the National Agricultural Statistics Service, in 2009 Dallam County had 54,025 ha planted to corn. This is approximately 19% of the total corn planted in the 26 counties in the Texas Panhandle and 6% of the total corn planted in the state of Texas. Extracts from the infected leaf tissue tested positive for *Clavibacter michiganensis* subsp. *nebraskensis* with a commercially available ELISA test (Neogen Inc., Scotland, UK). Isolation from the infected tissue onto CNS selective media (1) resulted in round, dark orange, mucoid colonies that tested gram positive with the Gram-stain test. BLAST nucleotide

sequence alignments of the amplified 500-bp 16S rRNA region of the suspect culture's genome (2) revealed a 96% similarity for *C. michiganensis* subsp. *nebraskensis* (NCBI BLAST Accession No. U09381.1). To fulfill Koch's postulates, three sweet corn plants (Golden Cross Bantam) at growth stage V3 to V4 were inoculated in the greenhouse with a suspension of approximately 1×10^9 CFU/ml from suspect cultures grown on CNS for 5 days. Wounds approximately 6.5 cm long were created with sterile scissors on the fifth leaf from the bottom running parallel to the veins on either side of the midrib at the leaf apex. The leaf apex was dipped into 150 ml of the inoculum suspension for 5 s. Approximately 6 days after inoculation, discontinuous, water-soaked spots consistent with the symptoms on the original symptomatic leaves appeared on all the inoculated leaves near the site of infection. Colonies consistent with *C. michiganensis* subsp. *nebraskensis* (dark orange, mucoid) were reisolated onto CNS, completing Koch's postulates. To our knowledge, this is the first report of Goss's bacterial wilt and leaf blight on corn in Texas and because it is a residue-borne pathogen, the probability of it becoming a resident disease is relatively high.

References:

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(2) X. Li and S. H. De Boer. 1995. Phytopathology 85:837, 1995.